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EXAMINER	
FIGUEROA, JAIME	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,679	GARTI, EFRAIM	
	Examiner	Art Unit	
	Jaime Figueroa	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *68-95* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *68-95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04/13/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 15, 2010 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 68 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Porat (US 7,089,876).

As per claim 68, Porat'876 teaches a self-propelled / automatic cleaning robot configured to move in a swimming pool in accordance with commands from an inherent main controller therein, the robot when in use being free of any cables connected to an external power supply (see fig. 1), and including:

a body unit (see fig. 1, element 100) with a battery power pack (see fig. 1, element 102), configured to move along the floor and/or walls of the pool (see fig. 1, element 2);

a tail unit (see fig. 1, element 10) comprising a head portion configured to float on the surface of the pool (see fig. 1, 2, & 4, element 10) while the body unit (see fig. 1, element 100) is

on the floor of the pool (see fig. 1), the head portion comprising electrical connectors represented by at least elements 50/52/54 (see fig. 1, 2, & 4) designed for power input/output to facilitate charging batteries or battery in the battery power pack (see fig. 1, 2, & 4) by an external charger 4 (see fig. 2); and

a tethering cable 90 attached at least in use (see fig. 1), to the body unit (see fig. 1), the tethering cable being of sufficient length to allow the float of the head portion to float on the surface of the pool while the body unit is on the floor of the pool (see fig. 1).

Examiner would like to note that although Porat'876 does not disclose explicitly the presence of a controller, it is at least obvious if not inherent that the self-propelled cleaning robot of Porat'876 includes a controller in order to perform control functions of the assigned tasks autonomously or automatically, such as cleaning, positioning detection, battery charge level, avoiding collision with the pool walls, cleaning patterns, etc.

Claims 69-70, 72-78, 94 and 95 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Porat (US 7,089,876) in view of Mileski et al. (US 6,525,762) and further in view of Abramson et al. (US 2003/0120389).

As per claim 94 (new), Pora'876t teaches a self-propelled / automatic cleaning robot configured to move in a swimming pool in accordance with commands from an inherent main controller therein, the robot when in use being free of any cables connected to an external power supply (see fig. 1), comprising:

a body unit (see fig. 1, element 100) with a battery power pack (see fig. 1, element 102), configured to move along the floor and/or walls of the pool (see fig. 1, element 2);

a tail unit (see fig. 1, element 10) comprising a head portion configured to float on the surface of the pool (see figures 1, 2, & 4, element 10) while the body unit (see fig. 1, element 100) is on the floor of the pool (see fig. 1);

a tethering cable 90 attached at least in use (see fig. 1), to the body unit (see fig. 1), said tethering cable being of sufficient length to allow said head portion to float on the surface of the pool while the body unit 100 is on the floor of the pool (see fig. 1).

Porat'876 does not teaches specifically said head portion comprising an antenna configured to receive commands from a wireless remote control unit being configured to perform one or more functions being selected from the group consisting of: choosing the mode of cleaning operation of the robot; causing the robot to move in a direction directed by a user and independent of scanning algorithm; predetermining the cycle time; and selecting the length of a pool to be scanned.

However, Mileski et al. teaches a wireless underwater video system using submersible electronic device 20 (video camera) and a floating housing 42 having an antenna 52 for transmitting / receiving RF signals (see fig. 1).

Additionally, Abramson et al. teaches a robotic vacuum cleaner having an infra-red remote controller 46 (see fig. 1) to provide the robot with command signals such as ON/OFF, traveling modes, cleaning modes / patterns, strengths of cleaning, speed, etc.

Examiner would like to note that, at very at least, it would obvious to a person having ordinary skill in the art to apply the teachings of Mileski et al.'s underwater video camera to a

different electronic device such as a robotic pool cleaner that belongs to the kind of submersible electronic devices.

Thus, it would have been obvious to one having ordinary skill in the art to provide Porat'876 system with the floating housing having and antenna as taught by Mileski et al. and the remote control as taught by Abramson et al., since such a combination will provide Porat'876 system the benefit of having capability of transmitting / receiving RF signals to / from an external user's platform for controlling / monitoring different tasks as claimed of the submersible electronic device (pool cleaner, video camera or the like) regardless its current position.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

As per claims 69 and 70, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 94.

Porat/Mileski et al./Abramson et al. does not teach specifically, wherein the head portion is configured to submerge below the water surface upon encountering an obstacle; and wherein the head portion is of a geometry which minimizes the likelihood of entanglement thereof with obstacles.

Examiner would like to note, since Mileski et al. teaches a floating housing 42 as part of the Buoy 40 being water-tight and round shaped (see fig. 1) to prevent disturbances and reduce the risk of entanglement with the diver or nearby objects (see col. 2, line 43 to col. 3, line 21), it

would be obvious to one having ordinary skill to see that the floating device of Mileski et al. is obviously capable to go underwater to avoid possible entanglement or encounters with obstacles.

As per to claim 72, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 94.

Porat'876 further teaches the cleaning robot wherein the head portion comprises a float user interface, and is designed such that the float user interface is disposed at or near the surface of the pool (see fig. 1, element 10), when the tail unit is in its working position (see fig. 1, element 10).

As per claim 73, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 72.

Porat'876 further teaches the cleaning robot wherein said tail unit further comprises a tail unit controller (see fig. 1, control elements 32) in communication with the inherent main controller (see fig. 1 shows the wire 90 connected between the floating platform and the cleaner robot).

As per claim 74, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 72.

Porat'876 further teaches the cleaning robot wherein the float user interface is configured to receive user input (see fig. 4 shows different ways to provide user inputs from the floating platform).

As per claim 75, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 94.

Porat'876 further teaches the cleaning robot wherein said tail unit (see fig. 1, element 10) further comprises at least one data presentation device (see fig. 4, shows display 34 to provide data presentation).

As per claim 76, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 94.

Porat'876 further teaches the cleaning robot that further comprising an external battery charger, which is connectable to the tail unit (see fig. 1, element 10) for charging at least one battery in said battery power pack in the body unit of the robot (see fig. 1, elements 102 and 100), (see col. 5, lines 14-28).

Examiner would like to note that it is at least obvious if not inherent (see figures 1, 2, & 4) that the battery from the robot on the bottom of the pool could have been charged by external power supply 4 via cable 92 and then cable 90. Notice the term power input/output for the electrical ports on both the robot and the floating platform. This means that the ports could be configured to provide either power input or power output, to and from the device. Thus, it is clear that power input from an external source could be routed to the robot on the bottom of the pool via floating platform 10.

As per claim 77, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 76.

Porat'876 further teaches the cleaning robot wherein the charger is configured to communicate with the tail unit via a cable (see fig. 1, element 90), and wherein another cable is used for connecting the tail unit (see fig. 1, element 94) with said battery power pack (see fig. 1, element 10).

Examiner would like to note that since cable 90 is an input / output cable and platform 10 also has input /output connections via 50 / 52 / 54, it is obvious if not inherent (see figures 1, 2, and 4) that the battery on the bottom of the pool could be recharged from external power supply 4 via platform 10 (col. 5, line 64 to col. 6, line 2).

As per claim 78, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 76.

Porat'876 further teaches the cleaning robot wherein the charger comprises at least one charger-side data presentation units (see fig. 4, particularly display 34 or LEDs 89 that are obviously capable of providing data-presentation in a way of displaying information or emitting lights).

As per claim 95 (new), Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 94.

Porat'876 further teaches the cleaning robot, wherein said head portion further comprises electrical connectors represented by at least elements 50/52/54 (see fig. 1, 2, & 4) designed for power input/output to facilitating charging batteries or battery in said battery power pack (see fig. 1, 2, & 4) by an external charger 4 (see fig. 2).

Claims 79-81, and 84-87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porat'876 / Mileski et al. / Abramson et al. in view of Porat et al. (US 6,842,931).

As per claims 79 and 80, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 94.

Porat'876/Mileski et al./Abramson et al. does not teaches specifically the cleaning robot including a memory configured to store a certain orientation of the robot in relation to a fixed direction, the controller being configured to provide the robot with a command to align its orientation in accordance with the stored orientation; and wherein the stored orientation is defined by the robot's initial orientation.

Porat et al.'931 teaches a submersible pool cleaner including a memory configured to store a certain orientation of the robot in relation to a fixed direction, the controller being configured to provide the robot with a command to align its orientation in accordance with the stored orientation; and wherein the stored orientation is defined by the robot's initial orientation (see col. 2, lines 1-19; see col. 8, lines 48-63).

Thus, it would have been obvious to one having ordinary skill in the art to provide Porat'876/Mileski et al./Abramson et al.'s system with the teachings of Porat et al.'931, since such a combination will provide Porat'876/Mileski et al./Abramson et al.'s system the benefit of having capability of storing programmed movement based upon initial orientation of the cleaner.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

As per claim 81, Porat'876/Mileski et al./Abramson et al. in view of Porat et al.'931 teaches as discussed above in claim 79.

Porat'876/Mileski et al./Abramson et al. does not teaches specifically the cleaning robot that further comprising a detector for detecting a wall when impacted by the robot, wherein the alignment of the robot's orientation is performed after at least one wall detection.

Porat et al.'931 teaches a submersible pool cleaner further comprising a detector for detecting a wall when impacted by the robot, wherein the alignment of the robot's orientation is performed, after at least one wall detection (see fig. 6: wall sensor 92), (see col. 8, lines 1-20).

Thus, it would have been obvious to one having ordinary skill in the art to provide Porat'876/Mileski et al./Abramson et al.'s system with the teachings of Porat et al.'931, since such a combination will provide Porat'876/Mileski et al./Abramson et al.'s system the benefit of having capability of detecting the presence of the wall to perform the cleaning, reverse movements and turning without collision.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

As per claims 84 - 86, Porat'876/Mileski et al./Abramson et al./Porat et al.'931 teaches as discussed above in claim 80.

Porat'876/Mileski et al./Abramson et al. does not specifically teach a cleaning robot wherein the controller is adapted to allow the robot to perform a straight lap and a subsequent stepped lap, each between two wall detections, both laps comprising said alignment, the stepped lap also including rotation of the robot through a predetermined angle relative to its orientation

during the straight lap, whereby the robot is adapted to move along two known mutually angled directions independently of the shape of the walls of the swimming pool; wherein said predetermined angle is 90 degrees; and wherein during the stepped lap, the robot moves for a period constituting a predetermined portion of the duration of the preceding straight lap, said portion being increased after a predetermined number of wall detections.

Porat et al.'931 teaches the cleaning robot wherein the controller is adapted to allow the robot to perform a straight lap and a subsequent stepped lap, each between two wall detections, both laps comprising said alignment (see col. 7, lines 48-55, wherein overlap has been considered as alignment), the stepped lap also including rotation of the robot through a predetermined angle relative to its orientation during the straight lap (see Fig. 5), whereby the robot is adapted to move along two known mutually angled directions independently of the shape of the walls of the swimming pool; wherein said predetermined angle is 90 degrees (see col. 7, lines 48-55, wherein 90° has been considered as known angle); and wherein during the stepped lap, the robot moves for a period constituting a predetermined portion of the duration of the preceding straight lap (see Fig. 5), said portion being increased after a predetermined number of wall detections (see Fig. 5).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat'876/Mileski et al./Abramson et al., with the robot type of Porat et al.' 931, because this modification would have introduced a novel algorithm for scanning pattern, into Porat'876/Mileski et al./Abramson et al.' teaching, thereby maximize the capability of the robotic cleaner to cover the entire bottom surface of the pool to be cleaned, and programmed to direct the cleaner in a particularly efficient pattern of movements.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

As per claim 87, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 94.

Porat'876/Mileski et al./Abramson et al. does not specifically teach, wherein the robot is preprogrammed for performing a plurality of cleaning modes, of which **at least two** are selected from a group comprising: (a) the robot scanning the floor surface of the pool, and ascending a sidewall at predetermined time intervals; (b) the robot having a decreased speed and an increased suction; and (c) the robot executing a cycle comprising ascending a sidewall to the waterline, cleaning the waterline for a predetermined amount of time in a first direction with relation to the pool, descending the sidewall to the floor, moving along the sidewall a predetermined distance in a second direction which is opposite the first direction, ascending the sidewall, and continuing cleaning in the first direction.

Porat et al.' 931 teaches, wherein the robot is preprogrammed for performing a plurality of cleaning modes (see Fig. 1), of which **at least two** are selected from a group comprising: **(a)** the robot scanning the floor surface of the pool, and ascending a sidewall at predetermined time intervals (see abstract); (b) the robot having a decreased speed and an increased suction; and **(c)** the robot executing a cycle comprising ascending a sidewall to the waterline, cleaning the waterline for a predetermined amount of time in a first direction with relation to the pool, descending the sidewall to the floor (see col. 1, lines 43-49), moving along the sidewall a

predetermined distance in a second direction which is opposite the first direction, ascending the sidewall, and continuing cleaning in the first direction (see Fig. 5).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat'876/Mileski et al./Abramson et al., with the robot type of Porat et al.' 931, because this modification would have introduced a novel algorithm for scanning pattern, into Porat'876/Mileski et al./Abramson et al.'s teaching, thereby maximize the capability of the robotic cleaner to cover the entire bottom surface of the pool to be cleaned, and programmed to direct the cleaner in a particularly efficient pattern of movements.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porat'876 / Mileski et al. / Abramson et al. / Porat et al.'931 in view of Hadari (US 2004/0260428).

As per claim 82, Porat'876/Mileski et al./Abramson et al./ Porat et al.'931 teaches as discussed above in claim 81.

Porat'876/Mileski et al./Abramson et al./ Porat et al.'931 does not teaches specifically a cleaning robot that further comprising an electro-mechanical drive mean, the first controller being configured to detect the current through the drive means, whereby when the current exceeds a threshold, the controller assumes a wall impact to have occurred.

Hadari teaches a pool cleaning apparatus having a controller being adapted to detect the current through the drive means, whereby when the current exceeds a threshold, the controller assumes a wall impact to have occurred (see Fig. 2, [0014 and 0015].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat'876/Mileski et al./Abramson et al./ Porat et al.'931, with the robot type of Hadari, because this modification would have introduced current monitoring through drive system, into Porat'876/Mileski et al./Abramson et al./ Porat et al.'931's teaching, thereby improving the effectiveness and maneuverability of a robot for cleaning swimming pools. The modification provides Porat'876/Mileski et al./Abramson et al./ Porat et al.'931 with means for detecting wall obstruction for cleaning robot.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porat'876/Mileski et al./Abramson et al./ Porat et al.'931 / Hadari in view of Taninaga et al. (US 6,021,361).

As per claim 83, Porat'876/Mileski et al./Abramson et al./ Porat et al.'931 / Hadari teach as discussed in claim 82.

Porat'876/Mileski et al./Abramson et al./ Porat et al.'931 / Hadari do not specifically teach a cleaning robot wherein the threshold is determined by multiplying an average of the

current passing through the drive means during one or more traversing of the pool floor by a constant.

Taninaga et al. teaches a robot control system wherein the threshold is determined by multiplying an average of the current passing through the drive means by a constant (see at least fig. 1 -3), (see at least col.5, line 46 to col. 6, line 48).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat'876/Mileski et al./Abramson et al./ Porat et al.'931/Hadari, with the robot type of Taninaga et al., because this modification would have introduced threshold value for average current, into Porat'876/Mileski et al./Abramson et al./ Porat et al.'931/Hadari's teaching, thereby improving the control of the speed of the robot according to the average current detected during different cycles of the operations of the robot.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

Claims 88 - 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porat et al. (6,299,699) alone.

As per claims 88 and 91, Porat et al.'699 teaches a cleaning robot configured to move in a swimming pool along two scanning directions obtained by adjusting the orientation of the robot in a predetermined way relative to a reference orientation thereof, said scanning directions having a predetermined angle therebetween, independently of the swimming pool's

shape (see fig. 1-5); and wherein said predetermined angle is 90 degrees (see col. 3, line 9-19, col. 4, lines 17-57). Examiner would like to note that Porat's pool cleaner has a controller 34 receiving signals from a set of sensors determining angles/obstacles in order to perform the programmed paths for advancing/reversing directions/orientations. Thus, it would have been obvious to one having ordinary skill in the art to perform any suitable configuration or programming to the controller of Porat'699 in order to perform the claimed invention, since has been held that doing so involves only routine skill in the art.

As per claims 89 and 90, Porat et al.'699 teaches as discussed above in claim 88.

Porat et al.'699 further teaches the cleaning robot including a memory configured to store the orientation of the robot, and a controller being configured to provide the robot with a command to align its orientation in accordance with the reference orientation (see at least abstract, see col. 3, line 9-19); and wherein the reference orientation is defined by the robot's initial orientation (col. 5, lines 6-25). Examiner would like to note that Porat's pool cleaner is obviously using a memory or storage device, since it is clear to one having ordinary skill in the art that the "programmed controller 34" needs to read/interchange data from a memory device in order to complete successfully without collisions the assigned task automatically. Furthermore, it is well known that all kind of electronic devices or apparatus are using memory or memories in order to store data, instructions, programs, signals or codes that can be further utilized by the controller.

Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porat'876/Mileski et al./Abramson et al. in view of Thrum et al. ("Probabilistic Algorithms and the Interactive Museum Tour-Guide Robot Minerva"- July 2000).

As per claim 71, Porat'876/Mileski et al./Abramson et al. teaches as discussed above in claim 94.

Porat'876/Mileski et al./Abramson et al. does not specifically teach the robot being configured to stop at a predetermined location when a predetermined number of wall encounters occur after the battery voltage drops below a predetermined amount.

Thrum et al. teaches a robot being configured to stop at a predetermined location when a predetermined number of wall encounters occur after the battery voltage drops below a predetermined amount (see page 20, section 5.3 paragraph 2).

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the robot type of Porat'876/Mileski et al./Abramson et al., with the robot type of Thrum et al., because this modification would have introduced battery monitoring system into Porat'876/Mileski et al./Abramson et al.'s teaching, so that the robot can return to the charger, thereby improving the efficiency and the reliability of the cordless pool cleaning robot.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

Claims 92 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porat (US 7,089,876) in view of Young et al. (US 7,144,057).

As per claims 92 and 93, Porat'876 teaches a self-propelled / automatic cleaning robot configured to move in a swimming pool in accordance with commands from an inherent main controller therein, the robot when in use being free of any cables connected to an external power supply (see fig. 1), and including:

a body unit (see fig. 1, element 100) with a battery power pack (see fig. 1, element 102), configured to move along the floor and/or walls of the pool (see fig. 1, element 2);

a tail unit (see fig. 1, element 10) comprising a head portion configured to float on the surface of the pool (see figures 1, 2, & 4, element 10) while the body unit (see fig. 1, element 100) is on the floor of the pool (see fig. 1), the head portion comprising electrical connectors represented by at least # 50/52/54 (see figures 1, 2, & 4) designed for power input/output to facilitate charging batteries or battery in the battery power pack (see figures 1, 2, & 4) by an external charger 4 (see fig. 2); and

a tethering cable 90 attached at least in use (see fig. 1), to the body unit (see fig. 1), said the tethering cable being of sufficient length to allow the float of the head portion to float on the surface of the pool while the body unit is on the floor of the pool (see fig. 1).

Porat'876 does not specifically teach the robot comprising a means for detecting its orientation in relation to a fixed direction; and wherein the means is a digital compass integrated onto the controller.

Young et al. teaches substantially a robotic vehicle comprising a means for detecting its orientation in relation to a fixed direction (digital compass, see fig. 1: plates 6a – 6d), (col. 3, line 7); and wherein the means is a digital compass integrated onto the controller (col. 3, line 7).

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cleaning robot type of Porat'876, with the digital compass type of Young et al., since such a combination will provide Porat'876 the benefit of having a digital compass for orientation detection hence increasing accuracy of the system.

All claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

Response to Arguments

In the Applicant's arguments filed on August 19, 2010, with respect to the rejections of claims 68-93 have been fully considered but are not persuasive.

It is noted that applicant has amended claims 69-72, 75, 76, 79, and 87.

It is noted that applicant has added new claims 94 and 95.

It is noted that claims 69-72, 75, 76, 79, and 87 have changed their dependency from claim 68 to new independent claim 94.

Regarding Applicant's argument, the Applicant is kindly invited to consider the new ground of rejection.

Examiner would like to note that references are to be interpreted as by one of ordinary skill in the art rather than as by a novice. See MPEP 2141. Therefore, the relevant inquiry when interpreting a reference is not what the reference expressly discloses on its face but what the reference would teach or suggest to one of ordinary skill in the art.

However, Examiner would like to note that a thought reading of prior art references utilized in the present office action reveals that what is argued is clearly supported. Examiner has made a broadest reasonable interpretation of the claim language; hence the references meet the claimed limitations. Furthermore, Examiner notes that, at very at least, it would have been obvious to one having ordinary skill in the art to see that the robot pool cleaner of Porat and its modifications is obviously capable of being utilized for the claimed invention since it anticipates all structural limitations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaime Figueroa whose telephone number is (571)270-7620. The examiner can normally be reached on Monday-Friday, 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi H. Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jaime Figueroa/
Examiner, Art Unit 3664

/KHOI TRAN/

Supervisory Patent Examiner, Art Unit 3664